CLAIMS:

1. Circuit for driving a load, comprising:

- two input terminals (11,12) for connection to a source of a supply voltage (V_{SUP});
- a first and a second output terminal (26, 27) for connection to the load (4);
- at least one inductor (28) coupled between one of the output terminals and a corresponding connection node (15);
- at least one arrangement (80) comprising a switch (M1) coupled between one of said input terminals (11) and one of said connection nodes (15), a diode (D1) being connected between said one connection node and the other input terminal (12);
- a control unit for controlling said one or more switches (M1, M2);

characterized in that each arrangement (80) and corresponding diode (D1) are designed to allow the voltage over the opened switch (M1) of said arrangement to return to substantially zero before said switch (M1) is closed, the control unit being designed to provide a signal for closing the switch (M1) when a substantially zero voltage over said opened switch (M1) is detected.

2. Circuit according to claim 1 for driving a load (4) with a substantially square wave current, comprising:

- a first arrangement (80) comprising a first switch (M1) coupled between the first input terminal (11) and one of the said connection nodes (15), a diode (D1) being connected between said one connection node (15) and the second input terminal (12);
- a second arrangement (81) comprising the second switch (M2) coupled between the second input terminal (12) and one of the said connection nodes (15, 16), a diode (D2) being connected between said one connection node (15,16) and the first input terminal (11);
- the control unit being designed to generate its control signals in commutation intervals (30, 31), said first switch (M1) being operated during a first interval (30) causing a load current having substantially a first direction, and said second switch (M2) being operated during a second interval (31) causing a load current having substantially the opposite direction.

3. Circuit according to claim 1 or 2, characterized in that said switches (M1,M2) are MOSFET switches.

4. Circuit according to claim 2, characterized in that a first inductor (28) is coupled between an output terminal (26) and a first connection node (15), and a second inductor (29) is coupled between said output terminal (26) and a second connection node (16), wherein the first switch (M1) is coupled between said first connection node (15) and the first input terminal (11) and the second switch (M2) is coupled between said second connection node (16) and the second input terminal (12).

5. Circuit according to claim 2, characterized in that each arrangement (80;81) comprises a series connection of a switch (M1; M2) with two diodes coupled in anti-parallel (70,71;72,73), which first and second arrangement (80,81) are coupled between the respective input terminals (11;12) and a common connection node (15) connected to one side of the inductor (28).

6. Circuit according to any of the claims 2-4, characterized in that the control unit (20) is designed to generate a commutation control signal for controlling the commutation intervals (30,31) and a switching signal having a higher frequency than said commutation control signal for controlling the operation of the active switch, wherein said commutation and said switching signal are synchronized by the control unit (20).

7. Circuit according to claim 6, characterized in that the commutation control signal ensures a commutation from said first interval (30) to said second interval (31) when the current through the one or more inductors (28, 29) is substantially zero.

8. Circuit according to claim 6, characterized in that the commutation control signal ensures a commutation from said first interval (30) to said second interval (31) when the current through the at least one inductor (28, 29) is substantially maximum.

9. Method for driving a load (4), comprising the steps of:

- turning on a switch (M1) for providing current through an inductor (28) to the load;

- turning off said switch (M1) when the current through the inductor (28) reaches a determined value;

characterized in that after turn-off of the switch (M1) the current is directed so that it continues to flow until the voltage over the switch is substantially zero, at which time the switch (M1) is turned on again.

10. Control unit for use in a circuit according to any of the claims 1-8, or in the method of claim 7, characterized in that said control unit comprises:

- two capacitors coupled in series between one input terminal (12) and one of the connection nodes (15, 16), wherein the divider node (82,83) between the two capacitors (42,43;40,41) is coupled via a resistor (78;77) to a logic circuit;
- said logic circuit being designed to provide a signal which turns on the corresponding switch connected to said connection node (15;16) when the voltage in the divider node (82;83) falls within a predetermined voltage range.

11. Control unit according to claim 10, characterized in that said logic circuit further comprises a timer (54) which starts running when the active switch (M1;M2) is turned on until a pre-set time period (T_{ON}) has elapsed, wherein the logic circuit provides a signal for turning off the switch when this pre-set time period has elapsed.

12. Control unit according to claim 10 or 11, characterized in that said logic circuit further comprises means for detecting a peak current in the load (4), wherein the logic circuit provides a signal for turning off the switch (M1;M2) when said peak current is detected.